Grain Tempering Agent (SarTemp®)[1] for Corn in Finishing Rations

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Summary

A finishing trial evaluated effects of adding a grain tempering agent (SarTemp®) along with water to dry corn before rolling. Yearling steers fed the corn treated with SarTemp® had higher daily gain and improved feed efficiency compared to steers fed dry rolled corn or corn treated with a wetting agent and water only. The SarTemp® and water improved the utilization of the corn as intakes were not markedly affected by treatment. Carcass characteristics were not significantly affected.

Introduction

Considerable research has been conducted over the years to evaluate methods of processing corn in beef cattle rations. When dry cracked corn is added to the ration, dust can be a problem, especially when a dry roughage such as ground hay and a dry supplement are utilized as the other ration components. Methods to reduce dust have included adding high moisture forages or liquid supplements, or utilizing high moisture or steam flaked grains. Recently, research has shown that treating grain with a tempering agent has improved performance of finishing cattle, plus feeders' experience suggests an improvement in ration quality by lowering dust level. SarTemp® is one grain tempering agent that is marketed in the High Plains area and includes both a wetting agent and yucca extract.

The purpose of this study was to evaluate the addition of SarTemp® or a wetting agent with water to dry corn before processing through a roller mill.

Procedure

Eighty-four crossbred yearling steers that had previously grazed on the same summer pasture were randomly assigned to twelve pens. The pens were then randomly assigned to one of three experimental treatments of corn for finishing cattle. The corn treatments were 1) dry rolled corn, 2) corn treated with a wetting agent and water before rolling and 3) corn treated with SarTemp® and water before rolling. The corn was mixed with the treatment products and water in a feeder-mixer box for approximately 15 minutes and then processed through the roller mill which was set for a coarse crack. Enough water was added to bring the moisture level of the corn up to 18%. The wetting agent and SarTemp® were added at the rate of 7.5 m1/100 lb of corn at 18.0% moisture. The products were added to the given quantity of water needed and then slowly added to the corn while mixing. Enough corn was treated to last for approximately one week. The trial was conducted during the early fall and through a mild winter. No problems were encountered with either heating or bridging when the processed 18% moisture corn was stored in overhead gravity bins. The corn was harvested approximately 3 weeks before the trial was initiated and the original moisture content was 15%. As a consequence very little water was needed to bring the moisture up to 18%. The steers were weighed on two consecutive days at the initiation of the trial. They were weighed once at the end of the trial. Final finishing live weight was determined by dividing the carcass weight by .625. This procedure attempted to minimize rumen fill differences by placing all steers on an equal dressing percentage basis. At the beginning of the trial the steers were given routine vaccinations for common feedlot diseases, implanted with Synovex-S and treated for external parasites.

The final finishing rations (dry matter basis) for all treatments consisted of 85% corn, 10% corn silage and 5% protein supplement (40%). The protein supplement contained Rumensin and Tylan. Receiving and two step-up rations were utilized in adapting the cattle up to the final finishing rations.

The rations were calculated to have 12% crude protein, 0.55% calcium, 0.75% potassium and 0.30% phosphorus (dry matter basis).

Results

Cattle fed the rolled corn treated with SarTemp® and added water had higher gains ($P<.10$) and were more efficient ($P<.10$) than those fed the dry rolled corn or the corn with only water added (Table 1). The performance of steers fed the corn with only water added was intermediate in gain and efficiency to steers fed the dry rolled and SarTemp® treated corn, indicating that adding water only may be of some benefit. Intakes did not differ ($P= .52$) with the various corn processing methods. Other data has shown that SarTemp®, which contains a yucca extract, and water has improved starch utilization.

Carcass characteristics were not greatly different. Marbling scores and percent choice appeared to be slightly higher for the steers fed dry rolled corn. The reason for this is not clear. These data suggest that both ration quality of dry feeds as well as animal performance could be improved if the recommended levels of SarTemp® and water were added to whole corn before rolling.

Table 1. Performance of Finishing Cattle Fed Corn Treated With a Grain Tempering Agent (SarTemp®) or a Wetting Agent Alone

	Control	Wetting Agent	SarTemp®	P-value
No. pens/trt	4	4	4	
No. steers/trt	26	26	28	
Initial weight, lb	857	859	864	
Final weight[1], lb	1344	1358	1391	
ADG[1], lb	3.41[a]	3.64[ab]	3.80[b]	.067
Feed intake (DM), lb	21.5	21.4	22.3	.52
Feed/gain	6.47[a]	5.91[b]	5.87[b]	.10
Carcass Characteristics				
Hot carcass wt, lb	828[a]	848[ab]	866[b]	.06
Dressing percent	61.6	62.4	62.3	
Fat, in.	.49	.52	.53	.7
Marbling score[2]	549	522	530	43
% Choice	71.43	64.29	60.71	

[1]Final weight adjusted to standard 62.5% dressing percent for all cattle.
[2]Marbling score of 500 = small[0].
[ab]Means with different superscripts are statistically different at the P<.10 level.

1. SarTemp® is a product and a registered trademake of SarTec Corporation, Anoka, Minnesota.

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